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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/073,981 | 02/14/2002 | Ryoji Toyofuku | 101154-00009 | 4937 |

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EXAMINER

LUM, LEE S

ART UNIT PAPER NUMBER

3611

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,981

Applicant(s)

TOYOFUKU ET AL.

Examiner

Ms. Lee S. Lum

Art Unit

3611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 Sept 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. A Response was filed 9/22/03.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hovanchak EPO 0279034 A1.

Hovanchak discloses an electric power steering apparatus for a vehicle comprising
Rack shaft 26 with rack 34 of gear teeth at one end, and externally-threaded screw 32 at one portion,

Pinion 46 meshing with the rack,

Ball-screw mechanism 182 with balls 192 and nut 184 engaged with the screw 32, best depicted in fig 6,

Electric motor 22 with hollow shaft 172 extending around the rack shaft (fig 6),

wherein the nut is disposed between the rack and motor (fig 1), and,

the motor includes a commutator (unidentified, left end of fig 5), and brushes

155.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3611

3A. **Claims 3 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hovanchak in view of Joshita 5971094.

Hovanchak does not disclose a torque limiter between the hollow shaft and nut, while Joshita shows this element 50 in a similar arrangement in fig 5, comprising a split ring of resilient material (col 5, last paragraph, to col 6, line 4) with a plurality of engagement rings (fig 7a). It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this feature, as shown in Joshita, to limit the torque applied to the rack, thus "reduce noise", and increase longevity of these moving parts.

3B. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hovanchak in view of Sugino et al 5927429.

Hovanchak does not disclose a rack guide, while Sugino shows rack guide 50. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include a rack guide, as shown in Sugino, so that the rack shaft may be properly supported during movement, and to properly engage the pinion with the rack.

Hovanchak does not disclose a bush at the other end of the rack shaft, while Sugino shows bush 75 in Fig 6. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this element so that this portion of the rack shaft is properly supported for optimal performance.

4. RESPONSE TO REMARKS

Examiner has provided new rejections as indicated above, where Hovanchak obviates the recited elements in Claims 1, 2 and 5. She maintains her rejections with Hovanchak in combination with Joshita, and Sugino, the latter references disclosing other recited elements.

5. Communication with the Examiner and USPTO

Any inquiry concerning this communication should be directed to Ms. Lum at (703) 305-0232, M-F, 9-6. Our fax number is (703) 872-9306. Any inquiry of a general nature, or relating to the status of this application/proceeding, should be directed to Customer Assistance at (703) 306-5771.

Ms. Lee S. Lum
Examiner
11/25/03

